KEY TO THE SOUTH AUSTRALIAN SPECIES OF EUCALYPTUS L'HERIT.

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The publication, in 1934, of Blakely's "Key to the Eucalypts" marked a definite advance in our knowledge of the genus, since the book made a very useful companion to Maiden's rather bulky "Critical Revision of the Genus Eucalyptus." It was a pity that Blakely's work, which was the result of years of patient and intensive labour, appeared under such misnomer, since identification of specimens with the aid of his "key" is difficult even when one has acquired a certain familiarity with the genus. This is particularly so when dealing with some of the members of such a complex as that around *E. odorata* or *E. oleosa*. Owing to the number of new species described by Blakely and the modification of some of the older ones, the key in Black's Flora of South Australia is no longer adequate and a new one is needed.

Since Blakely's death no botanist has taken over his eucalyptological work, which is to be regretted when the economic and botanical importance of the genus is considered. The whole genus is badly in need of integrated research by taxonomists, ecologists and geneticists, and hence this paper merely tries to clarify the present confusion so that a key to the South Australian species can be constructed.

The genus *Eucalyptus* includes an unusually high percentage of variable and unstable species which, for want of a more definite term, can be called polymorphic. Hybridisation is known to occur in the field, and evidence concerning its extent in Tasmania is being accumulated by Brett (5). Under natural conditions, and with such slow growing and long-lived species, it must be a long period before the results of any cross can be stabilised. It is possible that complete stability is never attained, and the plants representing various stages may be found close together in one locality or scattered throughout a region according to their adaptability to different habitat conditions. Possibly this explains the existence of some of the species complexes. But, whatever the cause of polymorphy may be, it is the resulting variants which must be deal with in a key.

When there is a series of related forms, the status given to any particular variant depends partly upon the amount of material available for comparison. If specimens A., C. and E. are found they may all apparently deserve specific rank. Add D. and they may be reduced to varieties. Add B. and F. and it becomes very difficult to separate them at all under any reliable character. On the other hand, the larger and more polymorphic a species becomes, the harder it is to delineate it sharply from other related species. Hence a balance must be struck, and since the meaning of the word "species" is, under these circumstances, more than usually uncertain, one is forced to take a somewhat utilitarian view and seek the most workable arrangement for practical purposes.

This work is not intended as a complete revision of the local species which would require some years of study both in the herbarium and in the field, as well as a fuller knowledge of Eucalypts occurring in other parts of Australia. The writer is in full agreement with Ferdinand von Mueller when he states, "to assign to each species its proper place involves the study of all allied congeners, and these are often . . . . dispersed at wide distances in Australia" (9). At present there are large gaps in localities whence specimens have been obtained. Until the areas around the Great Australian Bight and to the north of the Nullarbor Plain have been studied, relationships with Western Australian species cannot